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Rediscovery of the Dragonfly *Nannothemis bella* Uhler in Virginia (Odonata: Libellulidae)

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A total of 181 species of Odonata has been recorded from Virginia, including 130 dragonflies and 51 damselflies (Carle 1982, 1988; Division of Natural Heritage (DNH) database). One additional dragonfly, *Gomphus septima* Westfall, has been reported from the state solely on the basis of sight records (Carle, 1991). Carle's (1991) figure of 193 confirmed species (132 + 61) appears to be in error as it presumably includes numerous damselflies of hypothetical status. Differences in the dragonfly totals can be attributed to our recognition of two species included in his tally as subspecies.

In his comprehensive summary of Virginia's dragonfly fauna, Carle (1982) provided detailed collection records for every species confirmed from the state. No similar compilation exists for the damselfly fauna of Virginia, although Carle has prepared a species list (Carle, 1988) and provided DNH with selected museum and personal collection records for several of the rarer species. Based on this information and recent field surveys by DNH, we have determined that only six of the 181 species (3.3%) have not been collected in Virginia during the past quarter-century. These elusive species and their last year of collection in Virginia are: *Celithemis ornata* Rambur (1938), *Enallagma pallidum* Root (1938), *Ischnura prognata* Hagen (1938), *Libellula quadrimaculata* Linné (collection date unknown but prior to 1938), *Nannothemis bella* Uhler (1890) and *Neurocordulia virginiensis* Davis (1919). These records indicate that *N. bella* has been the most elusive species of Odonata in Virginia, where it had not been seen in more than a century prior to the 1993 field season.

Nannothemis bella is the smallest dragonfly in North America (and one of the smallest in the world), attaining a maximum length of 21.5 mm (Walker & Corbet, 1975). Females of this species are easily recognized by their small size and black and yellow striped abdomens (see color photo in Milne & Milne, 1980). Males become powdery blue when mature, superficially resembling males of *Erythrodiplax connata minuscula* Rambur (see color photo in Dunkle, 1989), except for their significantly smaller size and more blackish abdomens. The reported range of *N. bella* extends from Maine and Quebec south to Florida and west to Wisconsin and Louisiana (Needham & Westfall, 1955; Shiffer, 1985; Walker & Corbet, 1975). The species is more common in the northern part of its range, becoming very local southward (e.g., Shiffer, 1985; White et al., 1980). The preferred habitat is bogs and boggy ponds (Carpenter, 1991; Shiffer, 1985; Walker & Corbet, 1975). The reported flight season is from mid-April to early September (Needham & Westfall, 1955).

Prior to 1993, the only Virginia record of *N. bella* was based on two adult males collected by C. W. Johnson on 19 June 1890 along the Great Wicomoco River in Northumberland County (Carle, 1982). The species is apparently absent from the Buck Run Ponds at Locust Fork Recreation Area, George Washington National Forest in Highland County, the site of many interesting dragonfly records reported by Carle (1982). This diminutive dragonfly has not been found at any of the numerous sinkhole ponds in the Shenandoah Valley (Augusta and Rockingham Counties) as well as those surveyed in Isle of Wight County and the City of Newport News.

As a result of extensive odonate surveys conducted by DNH staff as part of a rare species inventory of the Fort A. P. Hill Military Reservation in Caroline County, we are able to report two new records of *N. bella* as follows: Beaver pond immediately E of Lonesome Gulch Pond, 5.2 km NNE junction state routes 2 and 207 in Bowling Green, one female, 17 June 1993, P. H. Stevenson; Bettys Bottom Pond, 7 km ESE junction state routes 2 and 207 in Bowling Green, three males, one

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female, 28 July 1993, S. M. Roble. The former site is in the northern half of the base and the latter site is in the southern half of the base. The two are separated by a linear distance of 8.7 km.

Although several dozen other ponds were surveyed on Fort A. P. Hill (as well as two very acidic ponds elsewhere in the county), *N. bella* was found only at the two sites listed above. These are two of the three most exemplary boggy ponds identified on the base by DNH plant ecologists (G. P. Fleming, personal communication). Despite several visits to the Lonesome Gulch site during the flight season of *N. bella*, the only adult observed there was the single female collected on 17 June. Only one brief visit to Bettys Bottom Pond was possible during the flight season of *N. bella* because of active military training activities. Approximately 20 adults were observed in a boggy cove near the southeastern corner of the pond. Several additional adults were noted further north along the pond's margin on the same date by J. C. Ludwig (pers. comm.).

We have not yet attempted to relocate the site of the original record of *N. bella* in Northumberland County. However, following the documentation of this species at Fort A. P. Hill, the first author surveyed three recently discovered fen-like seepage habitats on the Virginia portion of the Delmarva Peninsula. These sites (all in Accomack County) are ecologically unique and very significant botanically (Ludwig & Rawinski, 1993) but small in size (largest site ≤1 acre) and contain limited areas of open water. Similar habitats in Delaware support newly discovered populations of *N. bella* as well as numerous rare plants (J. C. Ludwig, pers. comm.). The Virginia sites were visited on 24 and 25 August 1993 (*N. bella* was still active in Delaware several days later *fide* J. C. Ludwig), but no adults were observed, and it appears that this species does not inhabit these sites. However, the seepage-loving damselfly *Argia bipunctulata* (Hagen), another very local species (Dunkle, 1990), was found at two of the three sites. One of these populations (>200 adults observed) is the largest currently known in Virginia.

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